



**RE: Your presentation in Chicago - cleanup levels used uranium refining and conversion plant**

**Stuart Walker** to: 杉杖典岳  
Cc: '八木 直人'

09/14/2012 07:11 PM

From: Stuart Walker/DC/USEPA/US  
To: 杉杖典岳 <sugitsue.noritake@jaea.go.jp>  
Cc: '八木 直人' <yagi.naoto@jaea.go.jp>

Hi Noritake,

Thank you very much. I found this guidance you sent to be very informative about the Japanese laws and regulations. I found this guidance so interesting, I spent part of today reading some of the material cited in the guidance.

I did want to ask you if my understanding of Japanese regulations is correct. I was trying to determine which section of the Reactor Regulation Law was relevant to the 1 mSv dose limit for the general public. Please see below. I **yellow highlighted** the most relevant language

In the "Guidelines for Ensuring Safety of Raw Materials and Products Containing Uranium and Thorium" on page 23 it discusses the Japanese Reactor Regulation Law as one of the sources of the 1 mSv standard. [http://www.mext.go.jp/a\\_menu/anzenkakuho/genshiro\\_anzenkisei/\\_\\_\\_icsFiles/afieldfile/2010/03/29/1291646\\_2.pdf](http://www.mext.go.jp/a_menu/anzenkakuho/genshiro_anzenkisei/___icsFiles/afieldfile/2010/03/29/1291646_2.pdf)

**Commentary 2 Concept of radiation exposure of the general public**

**(1) Dose limits and others specified by law**

**In the Reactor Regulation Law, dose limits on workers and the general public are specified, respectively, concerning exposure dose limits on radiation exposure of human beings. In the Reactor Regulation Law, "dose limits on occupationally exposed persons" and "dose limits on places other than supervised areas" are specified. The dose limits on occupationally exposed persons are set at "100 mSv for five years and 50 mSv for one year," and the dose limits on places other than supervised areas are usually interpreted as "dose limits on the general public" and set at "1 mSv for one year."**

As for these dose limits, other countries have also introduced nearly the same regulations into their domestic laws based on the reports of ICRP and IAEA. Even in the case of lower than dose limits, doses must be reduced to the extent reasonably achievable in principle.

**However, even in the case that it is higher than the dose limit (1 mSv/year), clinical findings have not been confirmed with radiation doses of lower than 100-200 mSv. In other words, this dose limit is one-hundredth or lower than the level where clinical findings can be confirmed, meaning the level to conduct risk management by radiation.**

When I looked at the Reactor Regulation Law, I found two sections that discussed 1 mSv standards but I was unable to determine which is the standard for the general public.



<http://www.nsc.go.jp/NSCenglish/documents/laws/3.pdf>

see page 28 (the second to last page of the Reactor Regulation law)

(Dose Limit provided in Article 1, Paragraph 2, Subparagraph 6 of the Rules)

**Article 3.** The dose limit to be determined by the Minister of Economy, Trade and Industry, pursuant to Article 1, Paragraph 2, Subparagraph 6 of the Rules, shall be as follows.

(i) For effective dose equivalent, 1mSvs per year (one year start from April 1st).

(ii) For skin and eye lens tissue dose equivalent, 50mSvs each per year.

(iii) For eye lens tissue dose, 15mSvs each per year

2. In spite of provision of the Subparagraph 1 of the preceding paragraph, effective dose limit may be determined as 5mSvs when the Minister of Economy, Trade and Industry has so approved.

see page 29 (the last page of the Reactor Regulation law).

(Concentration Limit at Outside of Environmental Monitoring Area)

**Article 9.** The concentration limit to be determined by the Minister of Economy, Trade and Industry, pursuant to Article 15, Paragraph 4 and Paragraph 7 of the Rules, shall be as follows in average of three-month:

(i) When the type of radioactive materials (that given in annexed Table 2, the same applying in the following paragraphs and the third paragraphs and next Item paragraph 1 to 3) is known and that is only one type, concentration in air given in the column 5 of annexed Table 2, and that in water given in the column 6, for respective type of radioactivity:

(ii) When the types of radioactive materials are known and there are more than 2 different types of radioactive materials in water or in air, the concentrations of radioactive materials shall be such that the sum of their fractions to the respective concentrations provided in the preceding paragraphs, is less or equal to 1;

(iii) When the type of radioactive materials is unknown, the minimum concentration given in the column 5 of annexed Table 2 (except those type of radioactive materials whose non existence in air is clear.) for air and in the column 6 for water, respectively;

(iv) When the type of radioactive material is known, and the type of the radioactive material is not included in annexed Table 2, the concentration of the third column for in air and the fourth column for in water, in accordance with the division shown in the first column of the annexed Table 3;

(v) When radioactive materials exist in water and in air and there are risks of both inhalation and oral intake, concentrations of radioactive materials in water and in air shall be such that the sum of their fractions to the respective concentrations provided in the 1<sup>st</sup>, 3<sup>rd</sup> and precedent paragraphs, is less or equal to 1; and

(vi) When there are risks of both external radiation exposure and inhalation of radioactive materials in air or in water, the concentration of radioactive materials shall be such that the sum of its fraction of the effective dose equivalent for a year by external exposure to 1mSv, and the fraction of concentration for radioactive materials in air or in water to that provided in the preceding paragraphs, is less or equal to 1.

3. The provision of the preceding Paragraph 2 shall not be applied, if the Minister of Economy, Trade and Industry approved in accordance with Article 3, Paragraph 2.

Based on language I read in one of the guidance documents for dose targets for operating reactors, I believe the language on page 29 of the Reactor Regulation Law is most relevant, see page 5 of the guidance "NSCRG: L-RE-I.0 Regulatory Guide for the Annual Dose Target for the Public in the Vicinity of Light Water Nuclear Power Reactor Facilities "

[http://www.nsc.go.jp/NSCenglish/guides/lwr/L-RE-I\\_0.pdf](http://www.nsc.go.jp/NSCenglish/guides/lwr/L-RE-I_0.pdf)